

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) In a method for the preparation of a semiconductor device by forming a patterned resist layer on the surface of a substrate by pattern-wise light-exposure of a photoresist layer of a chemical-amplification positive-working photoresist composition comprising (A) a compound capable of generating an acid by irradiation with actinic rays and (B) a resinous compound capable of being imparted with increased solubility in an aqueous alkaline solution in the presence of an acid, the improvement which comprises decreasing the number of defects in the patterned resist layer by using a photoresist composition of which a layer before the pattern-wise light-exposure exhibits reduction of thickness at 23 °C in a 2.38% by weight aqueous solution of tetramethylammonium hydroxide at a rate in the range from 0.09 to 1.0 nm/second; and

wherein the resinous compound as the component (B) of the photoresist composition is a copolymeric resin (B-2) comprising monomeric units of acrylic acid or methacrylic acid substituted by tertiary alkyl groups for the hydrogen atoms of the carboxyl groups and monomeric units of hydroxystyrene or α -methyl hydroxystyrene.

Claims 2 – 8 (Cancelled)

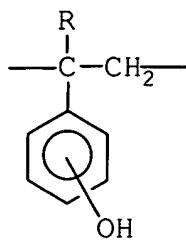
Claim 9 (Currently Amended) The improvement method as claimed in claim [[8]] 1 in which the tertiary alkyl group is an alkyl-substituted monocyclic or polycyclic hydrocarbon group.

Claim 10 (Currently Amended) The improvement method as claimed in claim 9 in which the alkyl-substituted monocyclic or polycyclic group is a 1-alkyl cycloalkyl group or a 2-alkyl adamantly adamanyl group.

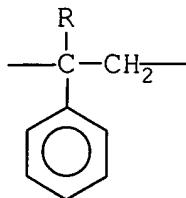
Claim 11 (Currently Amended) The improvement method as claimed in claim [[8]] 1 in which the copolymeric resin (B-2) further comprises monomeric units of styrene.

Claim 12 (Currently Amended) The improvement method as claimed in claim [[8]] 1 in which the copolymeric resin (B-2) further comprises at least two monomeric units of acrylic acid or methacrylic acid each substituted by an acid-dissociable crosslinking group for the hydrogen atom of the carboxyl group per molecule.

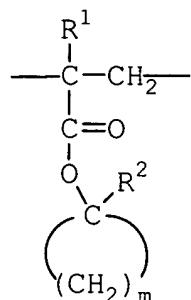
Claim 13 (Currently Amended) The improvement method as claimed in claim [[8]] 1 in which the copolymeric resin (B-2) consists of (b1) monomeric units of a first type represented by the general formula



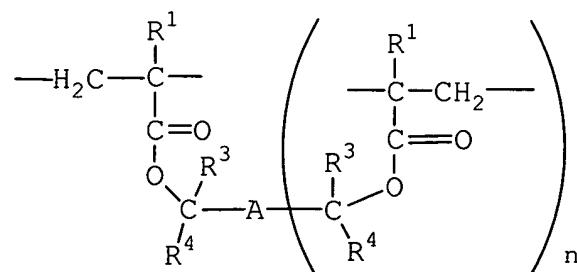
in which R is a hydrogen atom or a methyl group, (b2) monomeric units of a second type represented by the general formula



in which R has the same meaning as defined above, (b3) monomeric units of a third type represented by the general formula



in which R¹ is a hydrogen atom or a methyl group, R² is an alkyl group having 1 to 5 carbon atoms and the subscript m is an integer in the range from 3 to 7, and (b4) monomeric units of a fourth type represented by the general formula



in which R¹ has the same meaning as defined above, R³ and R⁴ are each an alkyl group having 1 to 5 carbon atoms, the subscript n is 1, 2 or 3 and A is a single bond or an organic residue of (n+1) valency.

Claim 14 (Currently Amended) The improvement method as claimed in claim 13 in which R2 in the general formula representing the monomeric units (b3) is an ethyl group.

Claim 15 (Currently Amended) The improvement method as claimed in claim 13 in which, in the general formula representing the monomeric units (b4), the subscript n is 1 and A is a straightly linear or branched alkylene group or a partially or totally cyclized alkylene group.

Claim 16 (Currently Amended) The improvement method as claimed in claim 13 in which, in the general formula representing the monomeric units (b4), the subscript n is 1, A is a straightly linear alkylene group having 2 to 10 carbon atoms and R³ and R⁴ are each a methyl group.

Claim 17 (Currently Amended) The improvement method as claimed in claim 13 in which the molar fractions of the monomeric units (b1), (b2), (b3) and (b4) are in the ranges of from 50 to 80%, from 1 to 25%, from 3 to 25% and from 1 to 15%, respectively.

Claim 18 (Currently Amended) The improvement method as claimed in claim 1 in which, the photoresist composition further comprises (C) an aliphatic tertiary amine compound, (D) a carboxylic acid compound, a phosphorus-containing oxoacids or an ester thereof or a combination of (C) and (D), the amount of each of the component (C) and component (D) being in the range from 0.01 to 1.0 part by weight per 100 parts by weight of the component (B).

Claim 19 (Currently Amended) The improvement method as claimed in claim 18 in which the component (D) is salicylic acid or phenylphosphonic acid.

Claim 20 (Currently Amended) The improvement method as claimed in claim 1 in which the semiconductor device has a contact hole in the resist layer.